

Weight Maintenance

Energy Balance- Input= Output

Three Factors Affect ENERGY OUTPUT

Basal Metabolic Rate: Energy required to maintain normal body functions while at rest**60-70%** of total energy output

Factors affecting BMR:

Age - slows as we age

Height - taller = more surface area (more heat required)

Growth - more Energy required for kids, teens, pregnant women

Fever - more Energy required to fight infection

Stress - increases all body systems

Fasting/ Starvation - slows BMR

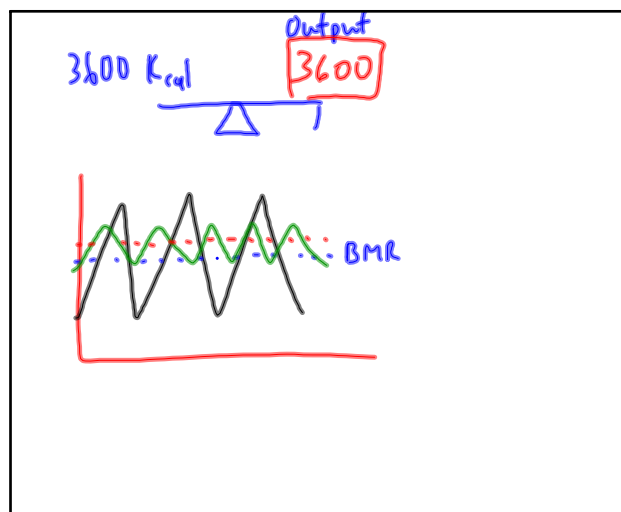
Body Composition - more Energy required to maintain more muscle

Thermogenesis - Thermic effect of food digestion**10%** of total energy output)**Physical Activity (20-30%** of total energy output)

Factors - your body composition (muscle to fat ratio)

- amount of muscle mass required

- amount of time activity takes



Dec 8-11:08 AM

Dec 9-12:06 PM

Everyone is an individual. Some people might feel and perform better at higher or lower body fat percentage than others of the same age and sex. And that's why...

Ranges and guidelines exist. Have a look at the tables below. The first table gives the ideal body fat percentage ranges for the **general population**.

The second table is the average body fat percentage for different **athletes**. The important thing to remember is...

Anywhere inside the range is good. Staying below the upper limit should be your target but as you'll soon see lower is not necessarily better.

Body Fat Percentage for The Average Population

Age	Up to 30	30-50	50+
Females	14-21%	15-23%	16-25%
Males	9-15%	11-17%	12-19%

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Average Body Fat Percentage of Athletes					
Sport	Male	Female	Sport	Male	Female
Baseball	12-15%	12-18%	Rowing	6-14%	12-18%
Basketball	6-12%	20-27%	Shot Putters	16-20%	20-28%
Body building	5-8%	10-15%	Skiing (X country)	7-12%	16-22%
Cycling	5-15%	15-20%	Sprinters	8-10%	12-20%
Football (Backs)	9-12%	No data	Swimming	9-12%	14-24%
Football (Linemen)	15-19%	No data	Tennis	12-16%	16-24%
Gymnastics	5-12%	10-16%	Triathlon	5-12%	10-15%
High/long Jumpers	7-12%	10-18%	Volleyball	11-14%	16-25%
Ice/field Hockey	8-15%	12-18%	Weightlifters	9-16%	No data
Racquetball	8-13%	15-22%	Wrestlers	5-16%	No data

Body Mass Index = weight/height²

weight in kg
height in metres

BMI - related to increase of disease

BMI over 27 = overweight

BMI over 30 = Obese

BMI less than 18.5 = underweight

18.5-27 - Healthy Body Weight

Somatotypes
Ectomorph
Mesomorph
Endomorph

Jan 24-8:59 AM

Bio-electrical Impedance

Target body Fat Range

Men 12- 20 %

Women 18-25%

- based on electrical conductivity of fat versus lean body mass

Dec 13-9:45 AM